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Closure of a subset of topological space

$x \in X$ is *adherent to* $A \subseteq X$ if all open sets U containing x satisfies $U \cap A \neq \emptyset$. The closure of A is the set of all points adherent to A :

Definition. Closure of a subset A of topological space $(X, \mathcal{T})$

Let $(X, \mathcal{T})$ be a [topological space](#). Then $A \subseteq X$.

$$\text{closure}_X(A) := \{x \in X : \forall U \in \mathcal{T} \text{ such that } x \in U, U \cap A \neq \emptyset\}$$

$A \subseteq \text{closure}_X(A)$

$\text{closure}_X(\text{closure}_X(A)) = \text{closure}_X(A)$

If A is closed, then $\text{closure}_X(A) = A$

Dense subsets

Definition. Dense subsets A of topological space $(X, \mathcal{T})$

Let $(X, \mathcal{T})$ be a [topological space](#). If the [closure of the set](#) is same as the set itself

$$\text{closure}_X(A) = X$$

then A is said to be **dense** in X .

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And it has 29 siblings.

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